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1. Your reference
P65036GB00

2. Patent application number *(The Patent Office will fill in this part)* 0310947.7 — 13 MAY 2003

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*
STEPHEN MAHER
14d Blackrock Road
Randalstown
County Antrim
BT41 3LF

Patents ADP number *(if you know it)* 83965410001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention "A Retractable Straw Device"

5. Name of your agent *(if you have one)*
F.R Kelly

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*
9 University Street
Belfast
BT7 1FY
Northern Ireland
United Kingdom

Patents ADP number *(if you know it)* 77744170001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*
N/A		

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*
N/A	

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
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Continuation sheets of this form	0
Description	10 ✓
Claim(s)	0
Abstract	0
Drawing(s)	7 only JMC

10. If you are also filing any of the following, state how many against each item.

Priority documents	0
Translations of priority documents	0
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	N/A
Request for preliminary examination and search *(Patents Form 9/77)*	0
Request for substantive examination *(Patents Form 10/77)*	0
Any other documents *(please specify)*	0

11. I/We request the grant of a patent on the basis of this application.

Signature Stephen Maher Date 7-5-03

Stephen Maher

12. Name and daytime telephone number of person to contact in the United Kingdom Tara Jennings - 028 9023 6000

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A Retractable Straw Device

The present invention relates to a device for use with a drinks container, in particular, a retractable straw device.

It is known for drinks containers to include a region of pierceable foil through which a straw may be inserted, to enable a user to drink through the straw. However, once the container has been pierced, the contents are liable to spill out if the container is knocked over. When a straw is used to drink from a bottle, and the user wants to re-cap the bottle, the straw must either be removed completely, or pushed down inside the bottle, which can often result in the straw becoming stuck in the bottle.

According to a first aspect of the present invention, there is provided a device for use with a drinks container, the device comprising a straw secured, in use, within the container; and an actuator operable to move the straw between a first, retracted state, wherein the straw is housed substantially within the container, and a second, extended state, wherein at least a portion of the straw protrudes from the container.

Preferably, the actuator is operable to convert rotary motion into linear motion, in order to effect extension or retraction of the straw via rotation of the actuator.

Preferably, the actuator comprises first and second co-axial members within which the straw is located, the straw having at least one lug which projects through a corresponding longitudinal slot in the first member to engage an internal thread on the second member, such that rotation of one member in relation to the other effects extension or retraction of the straw.

Preferably, the device includes a sealing cap hingedly mounted to at least one of the members.

Preferably, relative movement between the first and second members is achieved by rotating one of the members about its longitudinal axis.

Optionally, the device may include a third member co-axially disposed with respect to the first and second members.

Advantageously, the device may further include a lid which engages, in use, with a first end portion of the container.

According to a second aspect of the invention, there is provided a drinks container including a device as described hereinbefore.

As used herein, the term "container" is used to mean any container suitable for holding a fluid, including cans, bottles, cartons, and any other suitable receptacle.

Embodiments of the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a partially cutaway view of a device and associated straw, housed substantially within a drinks can, according to a first embodiment of the invention;

Figure 2 is an enlarged view of a portion of Figure 1, wherein the straw is in a first, retracted state within the can;

Figure 3 shows the device and can of Figure 1, wherein the straw is in a second, extended, state;

Figure 4 is a partially cutaway view of a device and associated straw, housed substantially within a drinks can, according to a second embodiment of the invention, wherein the device includes a lid adapted to co-operate with a first end portion of the can, and the straw is in a first, retracted state;

Figure 5 shows the device and can of Figure 4, wherein the straw is in a second, extended state;

Figure 6 is a partially cutaway view of a portion of a device for use with a drinks bottle, only a portion of the bottle being shown, according to a third embodiment of the invention, the device including a removable screw-threaded bottle top, and, wherein, the straw is in a first, retracted state; and

Figure 7 shows the device and bottle of Figure 6 wherein the bottle top is removed, and the straw is in a second, extended state.

Referring now to the accompanying drawings, there is illustrated a first embodiment of the invention comprising a device 10 for use with a drinks container, preferably in the form of a can 11. The device 10 preferably comprises an actuator which is operable to convert rotary motion into linear motion, in order to effect extension or retraction of the straw, via rotation of the actuator. The actuator preferably comprises substantially cylindrical first and second co-axial members in the form of casings 12, 14. Engaged within the second casing 14 is a substantially cylindrical straw 16. The device 10 is housed substantially within the can 11 such that the straw 16 is moveable between a first, retracted state, wherein the straw 16 is housed substantially within the can, to a second, extended state, wherein at least a portion of the straw 16 protrudes from the can 11, as will be explained in more detail hereinafter.

Referring now to Figures 1 and 2 of the drawings, the can 11 is made of any suitable material, such as aluminium, and is preferably of a conventional size and shape. The can 11 comprises a cylindrical sidewall 30 defining a body 31, and terminating in first and second end portions 32, 34. The second end portion 34 includes a recess 36. The first end portion 32 is generally conventionally shaped, having a platform 40 upon which is mounted a ring pull 38.

The ring pull 38, mounted on a first surface 39 of the platform 40, is removable to produce an aperture (not shown) of a size large enough to provide easy access to the device 10 located within the can 11.

A layer of material 42, preferably plastic, engages at least a portion of an underside 41 of the platform 40. Towards the centre of the platform 40, the layer 42 diverges away from the underside 41 so as to form a cavity 43 between the underside 41 and the layer 42. The layer 42 also extends into the body 31 of the can 11, such that the layer 42 is integrally formed with the first casing 12.

The second casing 14 is integrally formed with a first section 24 of a sealing cap 22. A second section 26 of the cap 22 is hingedly connected to the first section 24. The second section 26 includes a cylindrical projection 23 which sits within an otherwise free end of the straw 16 when the straw 16 is in the first, retracted state. When the straw is in the first state, the sealing cap 22 is closed and is located in the cavity 43 between the platform 40 and the plastic layer 42.

The first casing 12 has a threaded portion 18 substantially along the length thereof, as shown in Figure 2. Two oppositely disposed slots (not shown) are provided along the length of the second casing 14. Each of the slots is provided with a detent (not shown) at each end thereof. A pair of oppositely disposed lugs (not shown) are provided on an outer surface of the straw 16. The lugs enable the straw 16 to engage with

the first and second casings 12, 14, by projecting through the pair of slots (not shown) and engaging the threaded portion 18.

Thus, in use, the device 10 is operable as follows. In the first, retracted state, the straw 16 is located within the device 10 as shown in Figure 1 and as described above.

The can 11 is opened by pulling the ring pull 38, preferably removing it altogether, giving a user (not shown) access to the sealing cap 22. By pulling on the second section 26, the projection 23 is lifted out of the straw 16. The second section 26 including the projection 23 can then be used as a handle to rotate the first portion 24 and hence the integrally formed second casing 14 about its longitudinal axis. By rotating the sealing cap 22 in a clockwise direction, the second casing 14 is moved relative to the first casing 12. The lugs of the straw 16 engage the slots of the second casing 14, and by means of the rotating action of the sealing cap 22, the straw 16 is moved to its second state wherein a portion of the straw 16 protrudes from the can 11.

Thus, in use, the straw 16 is easily moveable between its first, retracted state and its second, extended state, enabling the user to drink the contents (not shown) present in the body 31 of the can 11. It will be apparent that by rotating the sealing cap 22 in an anti-clockwise direction, the straw 16 can be easily returned to its first state. The sealing cap 22 can then be closed to prevent spillage.

Referring now to Figures 4 and 5, there is illustrated a device 110 according to a second embodiment of the invention, wherein like features of the invention have been accorded like numerals.

The first and second casings 112, 114 are similar to the casings 12, 14 of the first embodiment except for the following differences. The first casing 112 is not integrally formed with any plastic layer 42. Instead, the otherwise free end of the first casing 112 is integrally formed with a lid 50 adapted for snap-fit engagement with the first end 132 of the can 111. It will be appreciated that the device 110 of the second embodiment would be particularly suitable for use as a retro-fit device 110 with a conventional drinks can, as described below.

The sealing cap 122 of the second embodiment may have a different shape to that of the first embodiment, as shown in Figure 4. The sealing cap 122 includes a dome-shaped second section 126, hingedly attached to the first section 124, which is also preferably dome-shaped. The sealing cap 122 is preferaby attached to the second casing 114 as hereinbefore described. The second section 126 includes an elongate portion in the form of a handle 54, used for retracting and extending the straw 116 by rotating the sealing cap 122, as hereinbefore described. The handle 54 preferably lies substantially flush against the lid 50 when the straw 116 is in the first state.

The device 110 may also, optionally, be provided with a third co-axially disposed casing 52 located between the straw 116 and the second casing 114. The third casing 52 may simply enable the device 110 to have a width necessary to provide a secure fit within the aperture of the can 111. The third casing 52 is preferably shaped and dimensioned in the same way as the second casing 114, so that the third casing 52 essentially works in the same way as the second casing 114.

The device 110 may conveniently be used as follows. Once the ring pull 138 of a conventional can has been opened, or, preferably, removed, thereby creating an aperture in a normal way, the device 110 (including the first and second casings 112, 114, the straw 116 and optionally the third casing 52) is inserted into the can 111. The lid 50 is also engaged by a snap-fit arrangement with the first end 132 of the can as shown in Figure 4. Thus, once the device 110 is inserted into the can 111, the sealing cap 122 can be closed, retaining the straw 116 in the first, retracted state, or the sealing cap 122 can be opened, and the straw 116 extended, as shown in Figure 5. The device 110 therefore conveniently provides means of re-closing and further re-opening a conventional can which has already been opened.

Referring now to Figures 6 and 7, there is illustrated a device 210 according to a third embodiment of the invention, wherein like features of the invention have been accorded like numerals.

The device 210 is housed within a bottle 60, as shown in Figure 6. As hereinbefore described, the device 210 includes first and second casings 212, 214. The neck 61 of the bottle 60 is threaded to co-operate with an outer screw-threaded bottle top 62.

The first casing 212 of the third embodiment is adapted to fit securely within the neck 61, as shown in Figure 6. The otherwise free ends of the second casing 214 are shaped so as to form a substantially inverted U-shape in section, extending out of the opening of the bottle 60 so as to form an inner rotatable bottle top 64.

In use, therefore, the user unscrews and removes the outer bottle top 62. By rotating the inner bottle top 64, the straw may be retracted and extended as hereinbefore described.

As described above, the device 10; 110; 210 may conveniently be used integrally with a can, used as a retro-fit attachment, or used with a bottle top.

The present invention is not limited to the embodiments described herein. For example, the straw 16; 116; 216 is not limited to being retracted and extended by rotating the second casing 14; 114; 214 in a clockwise/anti-clockwise direction. The relative movement between the first and second casings 12; 112; 212, 14; 114; 214 may alternatively be created in any other way. Alternatively, it will be apparent that the device 10; 110; 210 may be simplified further whereby the straw 16; 116; 216 may simply be manually pulled

out of the drinks container 111; 60 in order to move into its extended state.

The present invention is not limited to the embodiments described herein which may be amended or modified without departing from the scope of the present invention.

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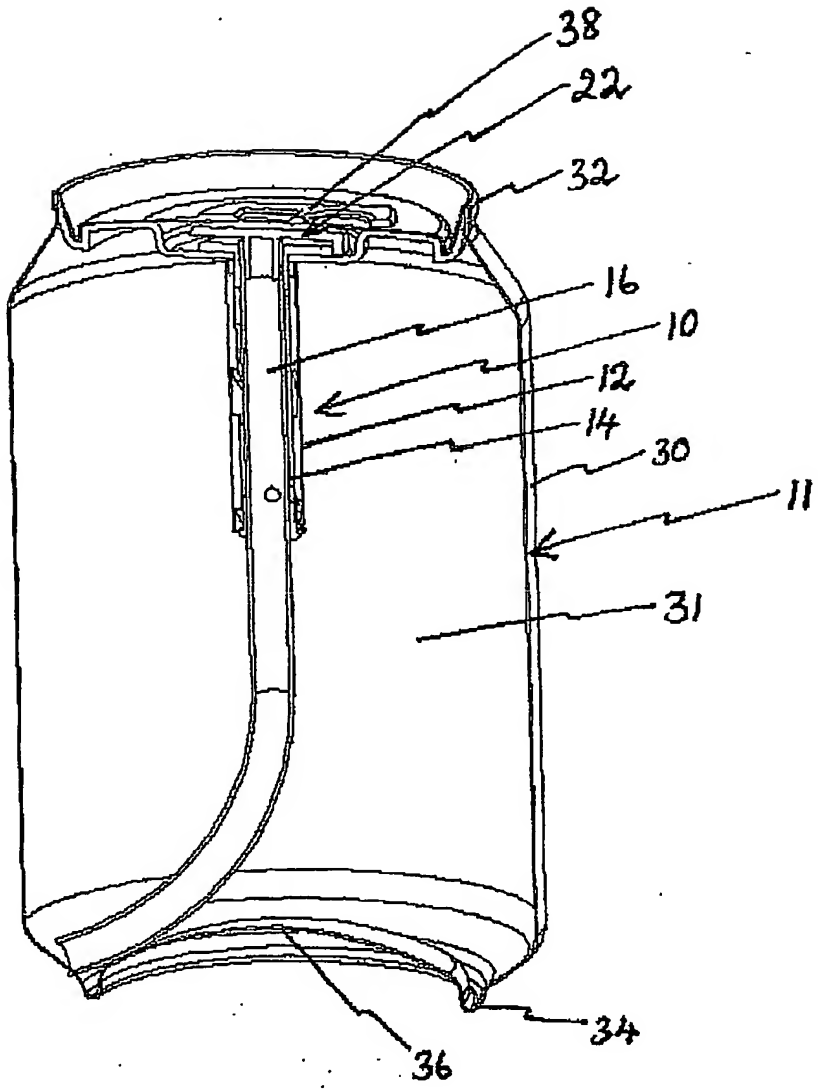

FIGURE 1

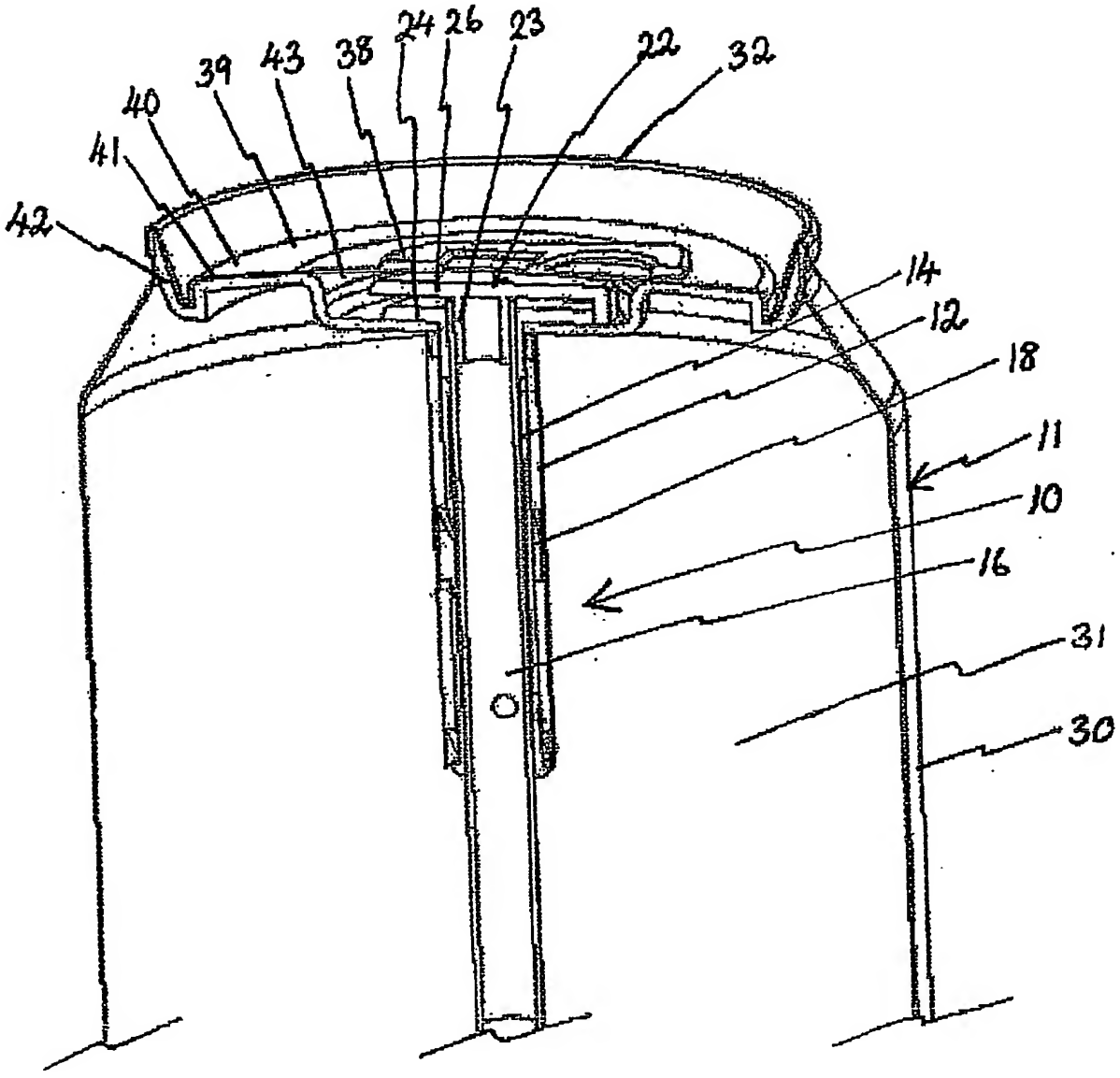

FIGURE 2

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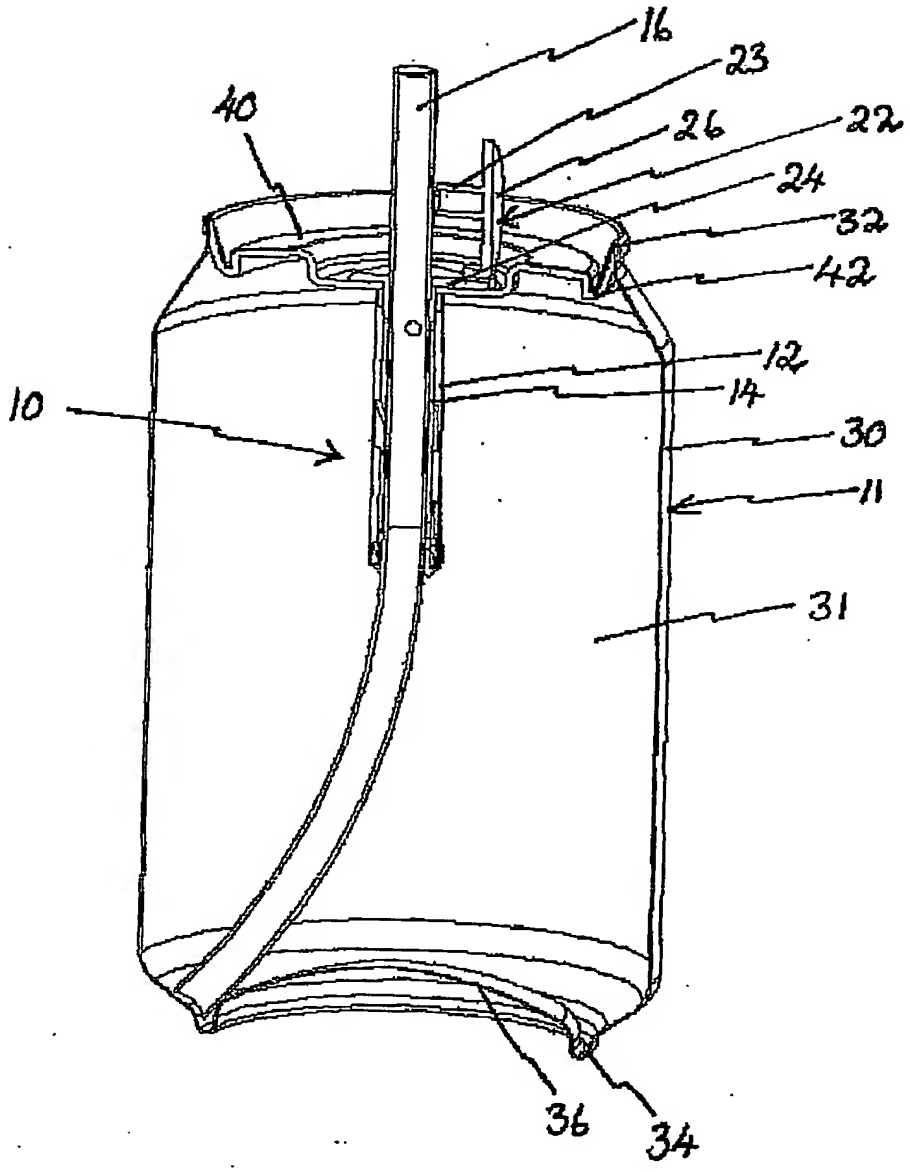

FIGURE 3.

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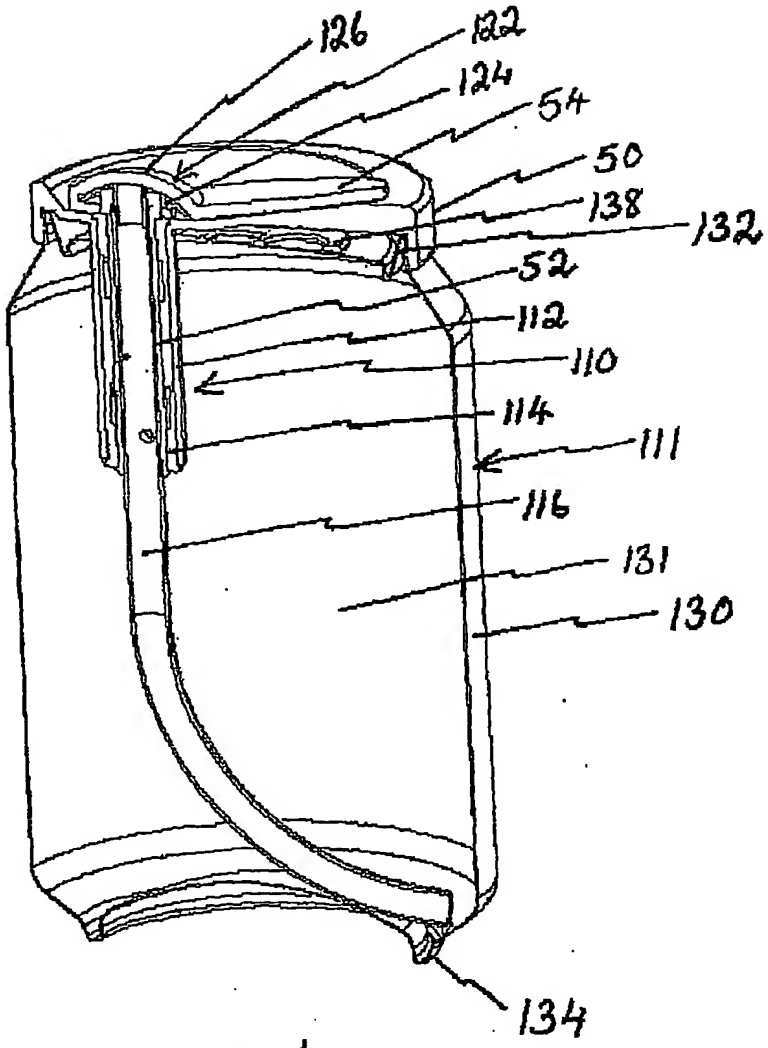

FIGURE 4

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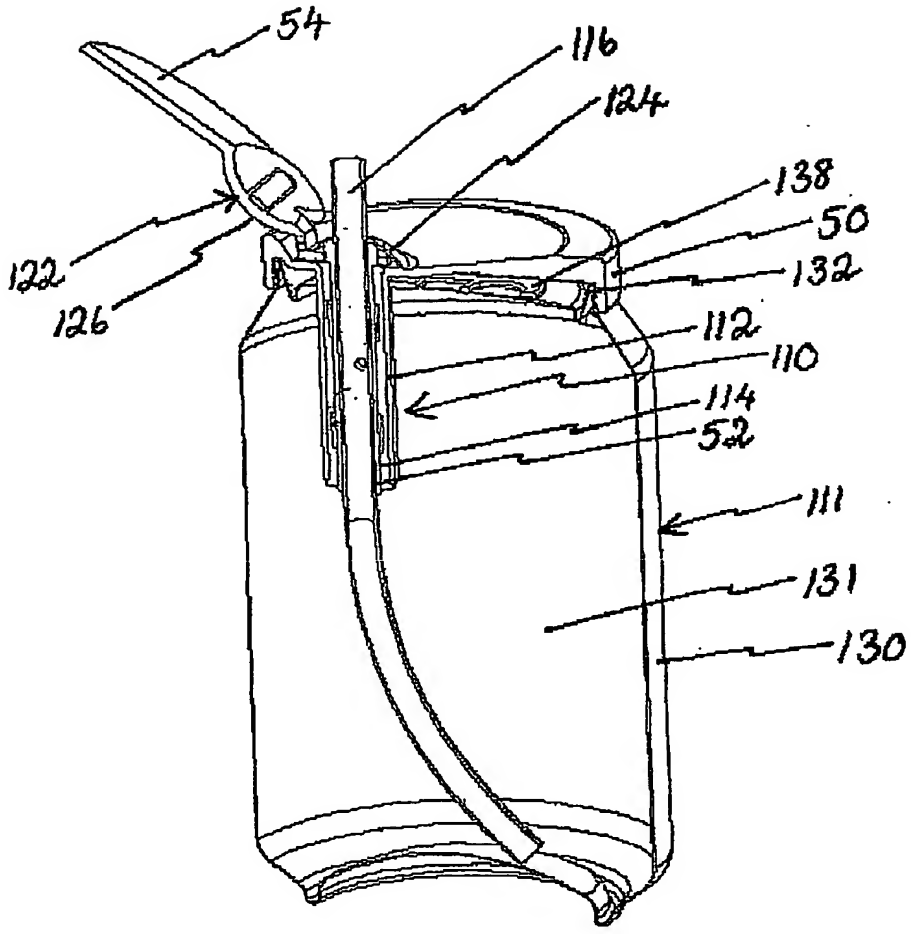

FIGURE 5

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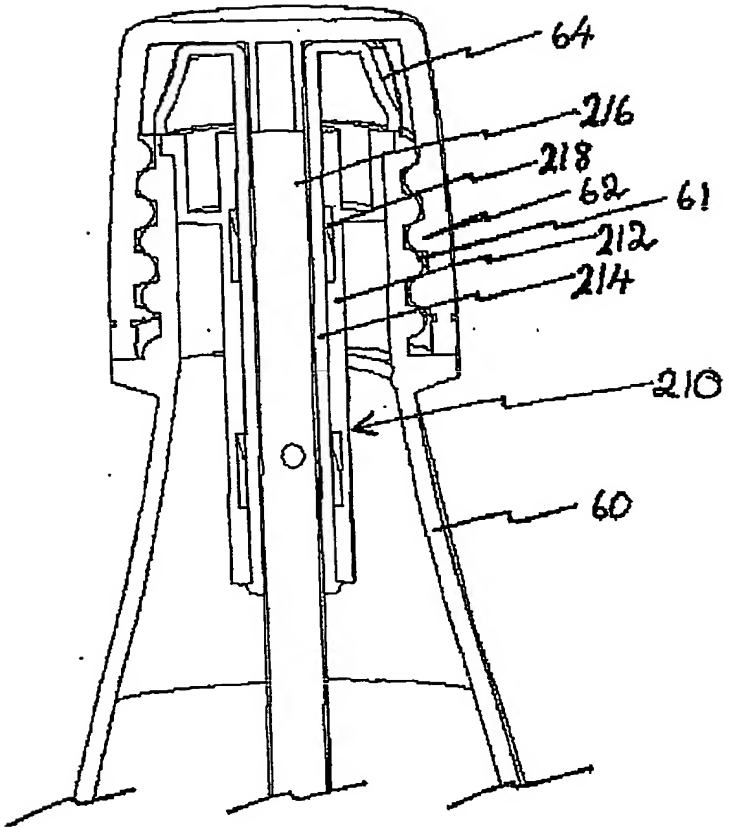

FIGURE 6

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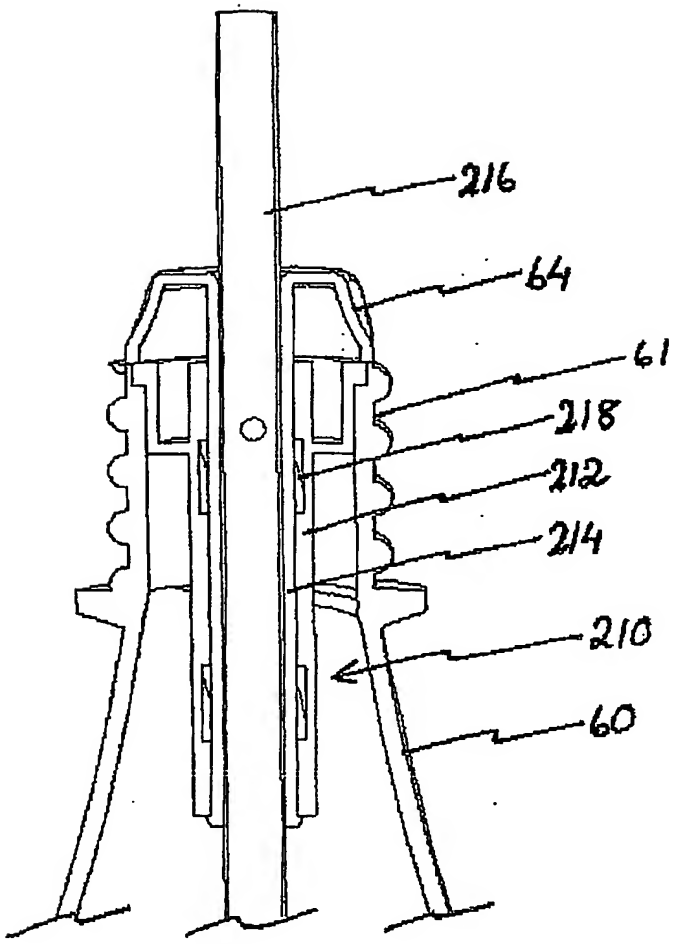

FIGURE 7